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ARACHNOIDAL CYST SIMULATING ACOUSTIC NEURINOMA

by

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A cystic stagnation of the cerebrospinal fluid caused by an arachnoidal adhesion has widely been known because of the symptoms similar to that of brain tumors. Since NONNE[1] called it a pseudotumor cerebri in 1904, such a lesion of the arachnoid has been investigated by many workers with the purpose of differentiation from the brain tumors.

These arachnoidal lesions may be divided clinically into two main groups on the basis of the invaded areas. The first is arachnoiditis adhesiva opto-chiasmaticae, and the second is arachnoiditis cystica adhesiva in the posterior fossa. Concerning the latter type, since the first report was described by Craig[2] in 1932, several literatures have been reported by KAPLAN, and other workers[4,5,6,7]. However, the arachnoidal cysts observed in their cases were mostly recognized in the midline of the posterior fossa, and the reports of the arachnoidal lesion in the cerebellopontine angle are rather rare. In an English literature, NICHOLA and MANGANIELLO[8]reported a case of traumatic arachnoidal cyst in the cerebello-pontine angle; BENGOCHEA and BLANCO[9] described a same case secondary to an inflammatory process of the external auditory meatus. In Japan, OHAGI[10] reported also an another same case. In this report the follwing case of the generalized arachnoiditis of the posterior fossa associated with the arachnoidal cyst in the cerebllo-pontine angle will be added.

CASE REPORT

S. T., a 26-year-old male, was admitted to our clinic on June 30, 1955, because of blindness, loss of hearing and instability of gait. For three years before admission he had experienced hardness of hearing and tinnitus of the left ear, and staggering of gait. These symptoms gradually increased and at times were accompanied with severe headache and vomiting, but the headache was usually subsided spontaneously after the course of 30 minutes or one hour. Since a year ago the vision and the hearing on both sides have almost been lost, and he has been distinctly unsteady while standing.

Past history: At the age of 14 years he was affected by a transient right hemiplegia with fever, and recovered one week after without any residual symptoms. No other infectious diseases and traumas have been experienced.

NEUROLOGICAL FINDINGS: His consciousness was clear. He was well-oriented but not co-operative to the complexed examination due to his sensory instability (optic and acoustic). The sense of smell was completely absent. The loss of

visual acuity was observed on both sides. The pupils of both sides were enlarged and not reactive to the light. There was bilateral papilledema of 5 diopter with several whitish spots in the periphery of discs. Exophthalmos associated with horizontal nystagmus was demostrated on both sides, especially on the left. The auditory sense on both sides was entirely failed, but other cranial nerves were intact. There was remarkable ataxia on standing, and the gait was staggering. The finger-finger test and the knee-ankle test were almost normal. There was no adiadochokinesis. No abnormalities were proved in every modality of sensation of the skin surface. Sense of position was also normal. All tendon reflexes were symmetrically normal on both sides. No pathlogical reflexes could be elicited. The spinal fluid was clear and not xanthochromic, and the pressure was 750mm.of water. The Queckenstedt's test was negative. The radiological examination of the skull revealed separations of the cranial sutures with thinning of the cranial vault. The ventriculography with moljodol disclosed symmetrically dilated lateral ventricles and dilatation of the 3rd and 4th ventricle. No dislocations and localized deformities were found in the ventricular system. Thus, both-sided acoustic neurinomas were suspected pre-operatively on the basis of the history of his distress and the neurological findings.

OPERATION: Suboccipital craniotomy was performed on July 21, 1955, and the posterior part of the foramen occipitale magnum was removed. On opening the dura, the arachnoid of cisterna magna was found to be opalescent, thickened and tense. Beneath it a cystic accumulation of the fluid was seen. (Fig. 1.) On opening this arachnoidal cyst-wall, xanthochromic fluid in amount of about 20cc overflowed and then the cerebrospinal fluid was continuously discharged. A part of the arachnoidal cyst-wall was removed for histological study. The yellowish stained cerebellum was obviously smaller and its surface was flattened. Careful search was performed in the left cerebello-pontine angle, and an adhesion of the pia-archnoid was found here. After the freeing of this adhesion an arachnoidal cyst lying posteriorly to the acoustic nerve was discovered. (Fig. 2.) This thumb-tip sized cyst was dark brown, and contained yellowish fluid, but any evidences of neoplasma were not recognized in this region. On the anterior margin of the tentorium cerebelli a pia-arachnoidal adhesion and another two small cysts were found. After the evacuation of these cysts the operative wound was closed. Two weeks later there appeared the symptoms of decerebration. On the reoperation 2 weeks later a small blood clott was revealed in the left subtentorial region, and it was removed. Such a compression of the cerebellum as showed on the first craniotomy was not recognized. But intracranial hypertension had continued without any improvement, and 15 days later the patient died from an aspiration pneumonia under the condition of decerebration.

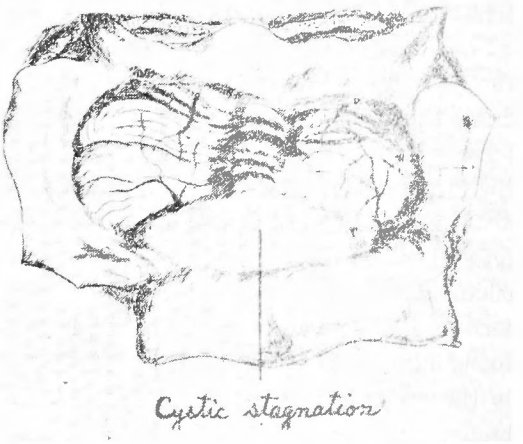
AUTOPSY: The arachnoid in the posterior fossa was generally gray-whitish clouded, thickened and rough especially in the left cerebellopontine angle. An another cyst as large as those on the left side was found in the right cerebellopontine angle. Besides, the thickend and cloudy arachnoid in the collicular and the interpnduncular region adhered to the pia-arachnoid in the neighbourhood of the cerebral stem and

the anterior margin of the tentorium. The histological examination of the cyst-wall removed at the operation showed hyalinized connective tissue and infiltration of some deeply stained round cells, some of which were identified as lymphcytes or monocytes. But other inflammatory cell and neoplastic elements could not be found. (Fig. 3.)

DISCUSSION

It is reasonable that the signs and symptoms based on the arachnoidal cysts in the cerebellopontine angle were similar to those of the acoustic neurinomas, because of the same compression brought on acoustic nerves. In our case, however, the extreme intracranial hypertention were due to the inhibition of the flow of the cerebrospinal fluid from the fourth ventricle toward the posterior fossa by the generalized arachnoidal changes in the posterior fossa; and the lesion observed in the cerebellopontine angle constituted only a small part of such generalized arachnoidal adhesion in the posterior fossa. Thus, the inhibition of the flow of the cerebrospinal fluid in the posterior fossa may be more important factor in regard to the development of the internal hydrocephalus in this case.

Fig. 1. Illustration of cystic stagnation of the cerebrospinal fluid in the cisterna magna.



In the cases described by CRAIG[2], KAPLAN[3] and other workers[4,5,6], following the removal of the arachnoidal cyst-wall at the site of the outlet of the fourth ventricle, the flow of the cerebrospinal fluid were re-established toward the posterior fossa and satisfactory results have been obtained in the long standing period after the operation. In our case, however, in spite of the removal of the cyst-wall and the re-establishment of the flow of the cerebrospinal fluid to the posterior fossa, no signs of improvement in his condition was observed. The unsuccessful result of our case indicated that some other more serious factors might exist in addition to the obstructive process at the site of the outlet of the fourth ventricle. Consequently, it is sufficiently suspected that the arachnoidal adhesion in the subtentorial collicular region had interfered with the flow of the fluid toward the middle

Fig. 2. Illustration of arachnoidal cysts situating posteriorly to the left acoustic nerve and in the subtentorial region.

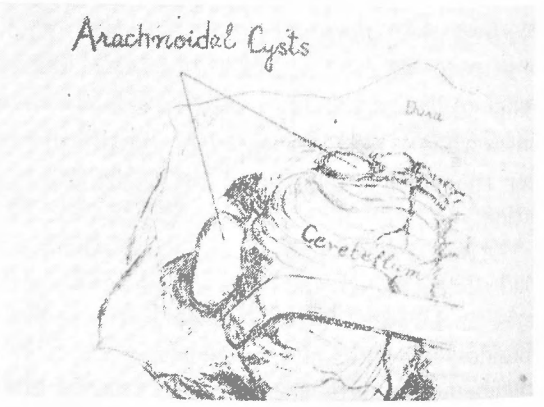
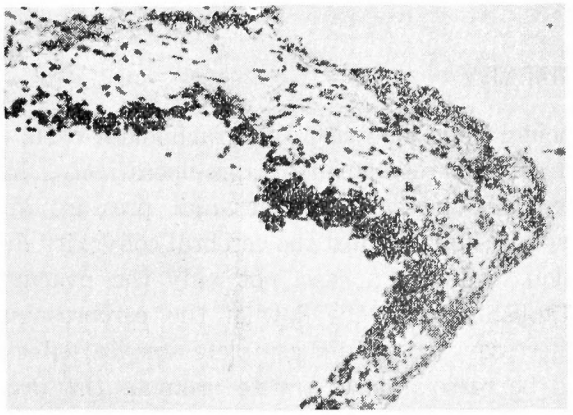


Fig. 3. Photomicrograph of the arachnoid in the cisterna magna.



fossa, although this arachnoidal lesions were separated as widely as possible in the previous operation. In fact, at the autopsy, it was shown that the pia-arachnoidal adhesion in the cerebral stem and the anterior margin of the tentorium had inhibited the escape of the fluid from the posterior fossa toward the cerebral convexity, which is recognized to be more important areas for the absorption of the cerebrospinal fluid. Alexander[9] described previously a similar case in which the arachnoidal lesion situated in the subtentorial supracollicular region and associated with marked hydrocephalus. Tuzimura[11] clinically studied on the cerebral pseudotumors in Japanese patients, and emphasized that several archnoidal lesion can scatteredly occur in a brain and the cases with localized lesions merely in a limited area are rather rare. According to his opinion careful thorough searchs for an another arachnoidal lesion should be necessary to obtain the complete surgical effects. Therefore, concerning the arachnoidal lesions in the posterior fossa, it is important to search for the arachnoid of the cerebral stem and anterior margin of the tentorium as well as the site of the outlet of the fourth ventricle. On the other hand, the complete visualization of these region may be technically difficult and the arachnoid once separated may be adhered again post-operatively. Thereafter, it may be recommendable not only to separate the adhesion but also to promote the drainage of the cerebrospinal fluid to the extracranial cavity, such as the thoracic cavity.

In regard to the etiology of such lesions, there are many confusions. The arachnoidal cysts in the posterior fossa which occur in infancy or during early childhood may be considered as a congenital malformation. In most instances, however, such lesion usually occur during the second or third decade of life, and the origins of these lesions are usually obscure except the cases secondary to traumatic and inflammatory processes. In our case, however, considering his past history and operative findings, it is suggested that the development of these lesions may be secondary to some preceding inflammatory process, such as meningitis serosa of unknown origin in the posterior fossa.

The differential diagnosis between the arachnoidal lesion and the cerebellar tumor or the acoustic neurinoma in the posterior fossa is very difficult, since the significant symptoms and signs for the arachnoidal lesion have been unknown in spite of many endeavors. In addition, the existence of the acoustic neurinoma accompanied with an arachnoidal cyst has been reported. Horrax[7] has also called attention to the fact that apparent arachnoiditis may be associated with a tumor in the posterior fossa, and emphasized that a careful search should be instiuted at the time of

operation for any associated neoplasma. In this reason, the craniotomy should be indispensable for the correct diagnosis as well as for the complete treatment of the pseudotumor cerebri.

SUMMARY

A case of the generalized pia-arachnoidal adhesion with the arachnoidal cysts in the posterior fossa, which was suspected of acoustic neurinoma pre-operatively, has been reported. This case indicated the extreme increased intracranial pressure and the blockage of the flow of the cerebrospinal fluid toward the cerebral convexity due to the generalized pia-arachnoidal adhesion. In such a case, not only the evacuations or removals of cysts but the re-establishment of the flow of the cerebrospinal fluid toward the cerebral convexity is necessary to obtain complete surgical effects. If these maneuver are difficult, it should be reasonable to try to promote the drainage of the cerebrospinal fluid toward the extracranial region.

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和文抄録

聴神経鞘腫を思わせた後頭蓋窩の癒着性蜘網膜炎について

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館林欣一郎

術前に両側の聴神経鞘腫を思わせた強度の脳圧亢進を有する患者に，後頭下開頭術を施行したところ，後頭蓋窩の蜘網膜は広範囲にわたつて癒着し，その為髄液の通過が阻止されて，大槽部に髄液が蓄積しているのが認められた．更に両側の小脳橋角部並びに小脳天幕下縁には，蜘網膜嚢腫も認められたが，腫瘍を思わせるものは見当らない．之等の蜘網膜の癒着を可及的に剝離し，嚢腫壁も除去したが，術後も脳圧の亢進状態は改善されずに死亡した．剖検すると，かゝる蜘網膜の変化は更に大脳脚や小脳天幕前縁にも波及していて，後頭蓋窩より中頭蓋窩への髄液の流通を障碍していたことが暗示された．即ち手術によつて第4脳室より後頭蓋窩までの髄液の流通は一応確立されたが，更に髄液の吸収に意義を有すると思われる大脳穹窿部への流通が阻止されていた為に，脳圧の亢進状態は改善されなかつたものと思われる．従つて後頭蓋窩の蜘網膜の癒着では，第4脳室よりの流出部のみでなく，中頭蓋窩への流入部の癒着にも注意を払うべきであつて，此の部の再疎通なくしては症状の改善の得られない場合がある．此の部の再疎通の不可能な場合は，他の体腔例えば胸腔等への髄液排除の試みも考慮されるべきものと思う．

Recurrent and Residual Stone in the Common Bile-Duct

E. S. R. Hughes

Brit. J. Surg No. 178. 198～ 204, 1956

胆嚢剔出術施行後再手術を要した患者55例の中総胆管に1個以上の結石を認めた症例36について考察を加えて報告する．

臨床像：

a) 36例中6例は急性胆嚢炎のため，29例は胆石症痛と黄疸のため，1例は胆石疝痛のため胆嚢剔出術を行つている．

b) 21例は第1回手術で胆剔と総胆管切開を施行し5例は胆剔のみ行つている．

c) 症状再発迄の期間は18例が12ヵ月以内，24例が8ヵ月以内，4例を除く他は3ヵ年以内である．

d) 29例は胆石疝痛と黄疸，3例は胆石疝痛のみ，1例は黄疸のみ，3例は胆汁瘻のために再手術を行つている．

5) 再手術時15例は1結石，18例は2個以上の結石，3例は1個の結石を砕いて取出した．

f) 36例中6例は3回の手術を必要とした．2例は他病院で再手術を受けていた．

1例は3回目の術前に死亡，1例は症状が持続している．

更に総胆管内の結石について考察を加えたが，一部は総胆管内で再生されるかも知れないが大部分は第1回手術時に見逃されるものであり，総胆管を開いても石は確実に取出されるとは限らない．

それで結石除去のために非手術的方法が種々考えられている．手術は第2回目手術では更に死亡率が増加し，大部分の患者は術後も症状持続をみるのでその点考慮して行はれねばならない．（倉本信二）